

## WHAT IS CLAIMED IS:

1. A method of diagnosing a human heart, comprising:  
providing one or more images of heart tissue from the heart to a computer system;

5 and

comparing at least one feature of at least one image of the one or more images of heart tissue from the heart to one or more reference features in a database to assess a state of the heart.

10 2. The method of claim 1, wherein comparing at least one feature comprises using the computer system to perform the comparison.

3. The method of claim 1, wherein the database comprises data from one or more expert opinions.

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4. The method of claim 1, wherein the database comprises data from one or more surgical procedures.

5. The method of claim 1, wherein the computer system divides at least one image of  
20 human heart tissue into a plurality of sections.

6. The method of claim 1, further comprising:  
providing two or more images of heart tissue to the computer system, and  
extrapolating at least one feature from at least two images of human heart tissue.

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7. The method of claim 1, further comprising:  
providing two or more images of heart tissue to the computer system; and  
using at least two images of heart tissue to create at least a three-dimensional  
image of the heart tissue.

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8. The method of claim 1, further comprising:

providing two or more images of heart tissue to the computer system; and  
using at least two images to create at least a four-dimensional image of the heart  
tissue.

5 9. The method of claim 8, wherein one of the dimensions comprises time.

10. The method of claim 8, wherein one of the dimensions comprises at least one  
physiological factor.

10 11. The method of claim 10, wherein at least one physiological factor comprises  
hormone B-type natriuretic peptide.

12. The method of claim 1, further comprising creating one or more images of the  
assessed state of the heart.

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13. The method of claim 12, wherein at least one image comprises at least a three-  
dimensional image.

14. The method of claim 12, wherein at least one image of the assessed state of the  
20 heart comprises progressive coloring.

15. The method of claim 14, wherein the progressive coloring comprises grayscale.

16. A method of diagnosing a human heart, comprising:

25 providing to a computer system a plurality of images of heart tissue from the  
heart;

using the plurality of images to create one or more three-dimensional images of  
human heart tissue, wherein at least one three-dimensional image comprises one or more  
features; and

30 comparing at least one feature to one or more heart reference features in a  
database to assess the state of the heart.

17. The method of claim 16, wherein comparing at least one feature comprises using the computer system to perform the comparison.

5 18. The method of claim 16, wherein the database comprises data from one or more expert opinions.

19. The method of claim 16, wherein the database comprises data from one or more surgical procedures.

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20. The method of claim 16, wherein the computer system divides the plurality of images into a plurality of sections.

15 21. The method of claim 16, further comprising extrapolating at least one feature from the plurality of images of human heart tissue provided to the computer system.

22. The method of claim 16, further comprising using the plurality of images to create at least a four-dimensional image of human heart tissue.

20 23. The method of claim 22, wherein one of the four-dimensions comprises time.

24. The method of claim 22, wherein one of the four-dimensions comprises at least one physiological factor.

25 25. The method of claim 24, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

26. The method of claim 16, further comprising creating one or more images of the assessed state of the heart.

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27. The method of claim 26, wherein at least one image of the assessed state of the heart comprises at least a three-dimensional image.

28. The method of claim 26, wherein at least one image of the assessed state of the heart comprises progressive coloring.

29. The method of claim 28, wherein the progressive coloring comprises grayscale.

30. A system configured to facilitate diagnosis of a human heart, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein at least one computer program is executable to:

provide one or more images of heart tissue from the heart to a computer system;

and

compare one or more features of at least one image of one or more images of heart tissue to one or more heart reference features in a database to assess a state of the human heart.

31. The method of claim 30, wherein comparing at least one feature comprises using the computer system to perform the comparison.

32. The method of claim 30, wherein the database comprises data from one or more expert opinions.

33. The method of claim 30, wherein the database comprises data from one or more surgical procedures.

34. The method of claim 30, wherein the computer system divides at least one into a plurality of sections.

35. The method of claim 30, further comprising extrapolating at least one feature from at least one image of the heart tissue provided to the computer system.

36. The method of claim 30, further comprising using at least one heart tissue image to  
5 create at least a four-dimensional image of the heart tissue.

37. The method of claim 36, wherein one of the four dimensions comprises time.

38. The method of claim 37, wherein one of the four dimensions comprises at least one  
10 physiological factor.

39. The method of claim 37, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

40. The method of claim 30, further comprising creating one or more images of the  
15 assessed state of the heart.

41. The method of claim 40, wherein at least one image comprises at least a three-  
dimensional image.  
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42. The method of claim 40, wherein at least one image comprises progressive coloring.

43. The method of claim 42, wherein the progressive coloring comprises grayscale.  
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44. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method, comprising:

providing one or more images of heart tissue from a human heart to a computer system; and

30 comparing at least one feature of at least one image of one or more images of heart tissue to heart reference features in a database to assess a state of the heart.

45. The carrier medium of claim 44, wherein comparing at least one feature comprises using the computer system to perform the comparison.

5 46. The carrier medium of claim 44, wherein the database comprises data from one or more expert opinions.

47. The carrier medium of claim 44, wherein the database comprises data from one or more surgical procedures.

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48. The carrier medium of claim 44, wherein the computer system divides at least one image of human heart tissue into a plurality of sections.

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49. The carrier medium of claim 44, wherein the program instructions are further executable to implement:

providing two or more images of human heart tissue to the computer system, and extrapolating at least one feature from at least two images of the heart tissue.

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50. The carrier medium of claim 44, wherein the program instructions are further executable to implement:

providing two or more images of human heart tissue to the computer system; and using at least two images of human heart tissue to create at least a three-dimensional image of the heart tissue.

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51. The carrier medium of claim 44, wherein the program instructions are further executable to implement:

providing two or more human heart tissue images to the computer system; and using at least two images to create at least a four-dimensional image of the heart tissue.

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52. The carrier medium of claim 51, wherein one of the dimensions comprises time.

53. The carrier medium of claim 51, wherein one of the dimensions comprises at least one physiological factor.

5 54. The carrier medium of claim 53, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

55. The carrier medium of claim 44, wherein the program instructions are further executable to implement creating one or more images of the assessed state of the heart.

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56. The carrier medium of claim 55, wherein at least one image comprises at least a three-dimensional image.

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57. The carrier medium of claim 56, wherein at least one image comprises progressive coloring.

58. The carrier medium of claim 58, wherein the progressive coloring comprises grayscale.

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59. A report prepared by a method, comprising:

providing one or more images of heart tissue from a human heart to a computer system; and

comparing one or more features of at least one image of one or more images of heart tissue to one or more heart reference features in a database to assess a state of the heart.

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60. A method of diagnosing a human heart, comprising:

providing one or more images of human heart tissue from the heart to a computer system;

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comparing at least one feature derived from at least one image of one or more images of human heart tissue to a database comprising heart reference features; and

charging for access to the database, or for data or results prepared using the database.

61. The method of claim 60, wherein comparing at least one feature derived from at least one image of one or more images of human heart tissue to a database comprising heart reference features comprises assessing a state of the heart.

62. A method of assessing treatments for a human heart, comprising:

providing at least one image of human heart tissue from the heart to a computer system, wherein the image comprises a plurality of features;

performing a first modification of at least one of the plurality of features;

performing at least a second modification of at least one of the plurality of features; and

comparing at least one of the first modifications to at least one of the second modifications, or comparing at least one of the second modifications to at least one of the first modifications.

63. The method of claim 62, wherein comparing the first and at least second modifications of at least one feature comprises using the computer system to compare the first and at least second modifications of at least one feature.

64. The method of claim 62, wherein comparing the first and at least second modifications of at least one feature comprises using the computer system to compare the first and at least second modifications of at least one feature to a database.

65. The method of claim 64, wherein the database comprises data derived from expert opinion.

66. The method of claim 64, wherein the database comprises data derived from previous surgical procedures.



67. The method of claim 64, wherein the computer system divides at least one image into a plurality of sections.

68. The method of claim 62, further comprising extrapolating at least one feature from  
5 at least two images of human heart tissue provided to the computer system.

69. The method of claim 62, further comprising:  
providing at least two images to the computer system; and  
using the images to create at least a three-dimensional image of human heart  
10 tissue.

70. The method of claim 62, further comprising:  
providing at least two images to the computer system; and  
using the images to create at least a four-dimensional image of human heart  
15 tissue.

71. The method of claim 70, wherein one of the dimensions comprises time.

72. The method of claim 70, wherein one of the dimensions comprises at least one  
20 physiological factor.

73. The method of claim 72, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

25 74. The method of claim 62, further comprising creating at least one image of the assessed condition of the heart.

75. The method of claim 74, wherein at least one image of the assessed condition comprises at least a three-dimensional image.  
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76. The method of claim 74, wherein at least one image of the assessed condition of the heart comprises progressive coloring.

77. The method of claim 76, wherein progressive coloring comprises grayscale.

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78. A method of assessing treatments for a human heart, comprising:

providing a plurality of images of heart tissue from a human heart to a computer system;

using the images to create at least a three-dimensional image of the heart tissue,

10 wherein the image comprises a plurality of features;

performing a first modification of at least one of the features;

performing at least one second modification of at least one of the features; and

comparing at least one first modification to at least one second modification, or comparing at least one second modification to at least one first modification.

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79. The method of claim 78, further comprising assessing the comparison of the first modification and at least one second modifications of at least one feature.

80. The method of claim 78, further comprising assessing the comparison of the first modification and at least one second modification, wherein the assessment comprises determining an optimum modification from the first and at least one second modification.

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81. The method of claim 78, wherein the computer system divides at least one image into a plurality of sections.

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82. The method of claim 78, further comprising extrapolating at least one feature from the plurality of images of human heart tissue provided to the computer system.

83. The method of claim 78, further comprising using the images to create at least a four-dimensional image of human heart tissue.

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84. The method of claim 83, wherein one of the dimensions comprises time.

85. The method of claim 83, wherein one of the dimensions comprises at least one physiological factor.

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86. The method of claim 85, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

87. The method of claim 78, further comprising creating at least one image of the comparison the first modification and at least one second modification of at least one feature.

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88. The method of claim 87, wherein at least one image of the comparison the first modification and at least one second modification comprises at least a three-dimensional image.

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89. The method of claim 87, wherein at least one image of the comparison the first and at least second modifications of at least one feature comprises progressive coloring.

20 90. The method of claim 89, wherein progressive coloring comprises grayscale.

91. A system configured to assess treatments for disease of a human heart, comprising:  
a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

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wherein one or more computer programs are executable to:

provide at least one image of heart tissue from the heart to a computer system,

wherein the image comprises at least two features;

perform a first modification of at least one of the features;

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perform at least one second modification of at least one of the features; and

compare at least the first modification to at least one second modification, or  
compare at least the second modification to at least one first modification.

92. A carrier medium configured to store program instructions, wherein the program  
5 instructions are executable to implement a method to assess treatments for a human heart,  
comprising:

providing to a computer system at least one image of heart tissue from the heart,  
wherein the image comprises at least two modifications;

performing a first modification of at least one of the features;

10 performing at least one second modification of at least one of the features; and

comparing at least the first modification to at least one second modification, or  
comparing at least the second modification to at least one first modification.

93. A report prepared by a method, comprising:

15 providing to a computer system at least one image of heart tissue from a human  
heart, wherein the image comprises at least two modifications;

performing a first modification of at least one of the features;

performing at least one second modification of at least one of the features; and

comparing at least the first modification to at least one second modification, or

20 comparing at least the second modification to at least one first modification.

94. A method of assessing treatments for disease of a human heart, comprising:

providing to a computer system at least one image of heart tissue from the heart,  
wherein the image comprises at least two modifications;

25 performing a first modification of at least one of the features;

performing at least one second modification of at least one of the features;

comparing at least the first modification to at least one second modification; and

charging for access to the database, or for data or results prepared using the  
database.

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95. A method of assessing at least one heart surgery procedure, comprising:

providing at least one image of human heart tissue from a human heart to a computer system;  
modifying one or more feature derived from the image; and  
assessing an affect of the modification on one of the one or more features of the  
5 image.

96. The method of claim 95, wherein modifying at least one feature of the image comprises using the computer system to modify at least one feature of the image.

10 97. The method of claim 95, wherein assessing an affect of the modification on one of one or more features derived from the image comprises using the computer system to compare the modification of at least one feature to a heart reference features in a database.

15 98. The method of claim 97, wherein the database comprises data from one or more expert opinions.

99. The method of claim 97, wherein the database comprises data from one or more surgical procedures.

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100. The method of claim 95, wherein the computer system divides at least one image into a plurality of sections.

101. The method of claim 95, further comprising extrapolating at least one feature from  
25 at least two images of human heart tissue provided to the computer system.

102. The method of claim 95, further comprising:  
providing at least two images of human heart tissue to the computer system; and  
using the images to create at least a three-dimensional image of the heart tissue.

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103. The method of claim 95, further comprising:

providing at least two images of human heart tissue to the computer system; and  
using the images to create at least a four-dimensional image of the heart tissue.

104. The method of claim 103, wherein one of the dimensions comprises time.

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105. The method of claim 103, wherein one of the dimensions comprises at least one  
physiological factor.

106. The method of claim 105, wherein at least one physiological factor comprises  
10 hormone B-type natriuretic peptide.

107. The method of claim 95, further comprising creating at least one image of the  
assessed affect of the modification on one of one or more features derived from the  
image.

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108. The method of claim 107, wherein at least one image of the assessed affect of the  
modification comprises at least a three-dimensional image.

109. The method of claim 107, wherein at least one image comprises progressive  
20 coloring.

110. The method of claim 109, wherein progressive coloring comprises grayscale.

111. The method of claim 95, wherein at least one of the features is extrapolated from at  
25 least two images.

112. A method of assessing heart surgery procedures, comprising:

providing a plurality of images of heart tissue from a human heart to a computer  
system;

30 using the plurality of images to create at least a three-dimensional image of the  
heart tissue, wherein the three-dimensional image comprises a plurality of features;

modifying one or more features of the plurality of features; and  
assessing an affect of the modification on at least one features of the three-  
dimensional image.

5 113. The method of claim 112, wherein using the plurality of images to create at least a  
three-dimensional image of human heart tissue comprises using the computer system to  
create at least a three-dimensional image.

10 114. The method of claim 112, wherein modifying at least one of the features of the  
three-dimensional image comprises using the computer system to modify at least one of  
the features.

115. The method of claim 112, wherein assessing an affect of the modification at least  
one features of the three-dimensional image comprises using the computer system to  
15 compare the modification of at least one feature to one or more heart reference features in  
a database.

116. The method of claim 115, wherein the database comprises data from one or more  
expert opinions.

20 117. The method of claim 115, wherein the database comprises data from one or more  
previous surgical procedures.

118. The method of claim 112, wherein the computer system divides at least one image  
25 into a plurality of sections.

119. The method of claim 112, further comprising extrapolating at least one feature from  
the plurality of images of human heart tissue provided to the computer system.

30 120. The method of claim 112, further comprising using the images to create at least a  
four-dimensional image of the heart tissue.

121. The method of claim 120, wherein one of the dimensions comprises time.

122. The method of claim 120, wherein one of the dimensions comprises at least one  
5 physiological factor.

123. The method of claim 123, wherein at least one physiological factor comprises  
hormone B-type natriuretic peptide.

10 124. The method of claim 112, further comprising creating at least one image of the  
assessed affect of the modification on at least one feature of the three-dimensional image.

125. The method of claim 124, wherein at least one image of the assessed affect of the  
modification comprises at least a three-dimensional image.

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126. The method of claim 124, wherein at least one image comprises progressive  
coloring.

127. The method of claim 126, wherein progressive coloring comprises grayscale.

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128. A system configured to assess heart surgery procedures, comprising:  
a CPU; and  
a system memory coupled to the CPU, wherein the system memory stores one or  
more computer programs executable by the CPU;  
25 wherein one or more computer programs are executable to:  
provide at least one image of heart tissue from a human heart to a computer  
system;  
modify one or more features of the image; and  
assess an affect of the modification on at least one feature of the image.

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129. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method to assess heart surgery procedures, comprising:

- 5       providing at least one image of heart tissue from a human heart to a computer system;  
      modifying one or more features derived from the image; and  
      assessing an affect of the modification on at least one features derived from the image.

10   130. A report prepared by a method, comprising:

- providing to a computer system at least one image of heart tissue from a human heart;  
      modifying one or more features derived from the image; and  
      assessing an affect of the modification on at least one feature derived from the  
15   image.

131. A method of assessing heart surgery procedures, comprising:

- providing at least one image of heart tissue from a human heart to a computer system;  
20       modifying one or more features derived from the image;  
      assessing an affect of the modification on at least one feature of the image; and  
      assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

25   132. A method of designing cardiac instruments, comprising:

- providing at least one image of heart tissue from a human heart to a computer system; and  
      creating a pattern of at least a portion of at least one cardiac instrument using at least one image.

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133. The method of claim 132, wherein creating a pattern comprises using the computer system to create a pattern.

134. The method of claim 132, wherein the computer system divides at least one image  
5 into a plurality of sections.

135. The method of claim 132, further comprising extrapolating at least one feature from at least two images of human heart tissue provided to the computer system.

10 136. The method of claim 132, further comprising:  
providing at least two images of human heart tissue to the computer system; and  
using the images to create at least a three-dimensional image of the heart tissue.

137. The method of claim 132, further comprising:  
15 providing at least two images of human heart tissue to the computer system; and  
using the images to create at least a four-dimensional image of the heart tissue.

138. The method of claim 137, wherein one of the dimensions comprises time.

20 139. The method of claim 137, wherein one of the dimensions comprises at least one physiological factor.

140. The method of claim 139, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

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141. The method of claim 132, further comprising creating at least one image of the pattern of at least a portion of at least one cardiac instrument using at least one image.

142. The method of claim 141, wherein at least one image of the pattern comprises at  
30 least a three-dimensional image.

143. The method of claim 132, wherein at least one feature of the pattern is extrapolated from at least two images.

144. The method of claim 132, wherein creating a pattern comprises using the computer  
5 system to create the pattern.

145. A method of designing cardiac instruments, comprising:

providing a plurality of images of heart tissue from a human heart to a computer system;

10 using the plurality of images to create one or more three-dimensional images of the heart tissue; and

creating a pattern of at least a portion of at least one cardiac instrument using at least one three-dimensional image.

15 146. The method of claim 145, wherein creating a pattern comprises using the computer system to create the pattern.

147. The method of claim 145, wherein using the images to create at least a three-dimensional image of human heart tissue comprises using the computer system to create  
20 the three-dimensional image.

148. The method of claim 145, wherein the computer system divides at least one image into a plurality of sections.

25 149. The method of claim 145, further comprising extrapolating at least one feature from the plurality of images of human heart tissue provided to the computer system.

150. The method of claim 145, further comprising using the plurality of images to create at least a four-dimensional image of the heart tissue.

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151. The method of claim 150, wherein one of the dimensions comprises time.

152. The method of claim 150, wherein one of the dimensions comprises at least one physiological factor.

5 153. The method of claim 152, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

154. The method of claim 145, further comprising creating at least one image of the pattern.

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155. The method of claim 154, wherein at least one image of the pattern of the modification comprises at least one three-dimensional image.

156. A system configured to design cardiac instruments, comprising:

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a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

provide to a computer system one or more images of heart tissue from a human

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heart; and

create a pattern of at least a portion of at least one cardiac instrument using at least one image.

157. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

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providing one or more images of heart tissue from a human heart to a computer system; and

creating a pattern of at least a portion of at least one cardiac instrument using at

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least one image.

158. A report prepared by a method, comprising:

providing to a computer system one or more images of heart tissue from a human heart; and

creating a pattern of at least a portion of at least one cardiac instrument using at least one image.

159. A method of designing cardiac instruments, comprising:

providing to a computer system one or more images of heart tissue from a human heart;

creating a pattern of at least a portion of at least one cardiac instrument using at least one image; and

assessing a cost to be charged to a user for using the method based on a number of cardiac instruments a user designs using the method.

160. A method of determining a volume of a heart, comprising:

providing a plurality of images of at least a portion of a heart to a computer system; and

assessing a volume in the portion by using the computer system to assess areas on the image.

161. The method of claim 160, wherein the volume is an end diastolic volume.

162. The method of claim 161, wherein the heart is in a substantially expanded condition.

163. The method of claim 160, wherein the volume is an end systolic volume.

164. The method of claim 163, wherein the heart is in a substantially contracted condition.

165. The method of claim 160, further comprising using the plurality of images to create at least a three-dimensional image.

166. The method of claim 160, further comprising deriving at least one feature of the heart from at least one of the plurality of images to assist in creating at least a three-dimensional image.

167. The method of claim 160, further comprising deriving a plurality of features of the heart from the plurality of images to assist in creating at least a three-dimensional image.

168. The method of claim 160, further comprising extrapolating at least one feature of the heart from at least two of the images to assist in creating at least a three-dimensional image.

169. The method of claim 160, further comprising extrapolating a plurality of features of the heart from the plurality of images to assist in creating at least a three-dimensional image.

170. The method of claim 160, further comprising creating at least a three-dimensional image of human heart tissue comprises.

171. The method of claim 160, further comprising using the computer system to create at least a three-dimensional image of human heart tissue comprises.

172. The method of claim 160, wherein the computer system divides at least one image into a plurality of sections.

173. The method of claim 160, further comprising using the images to create at least a four-dimensional image of human heart tissue.

174. The method of claim 173, wherein one of the dimensions comprises time.

175. The method of claim 173, wherein one of the dimensions comprises at least one physiological factor.

5 176. The method of claim 175, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

177. The method of claim 160, further comprising creating at least one image of the assessed volume.

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178. The method of claim 177, wherein at least one image of the assessed affect of the modification comprises at least a three-dimensional image.

179. A system configured to determining a volume of a heart, comprising:

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a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

provide a plurality of images of at least a portion of a heart to a computer system;

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and

assess a volume in the portion by using the computer system to asses areas on the image.

180. A carrier medium configured to store program instructions, wherein the program

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instructions are executable to implement a method, comprising:

providing a plurality of images of at least a portion of a heart to a computer system; and

assessing a volume in the portion by using the computer system to asses areas on the image.

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181. A report prepared by a method, comprising:

providing a plurality of images of at least a portion of a heart to a computer system; and

assessing a volume in the portion by using the computer system to assess areas on the image.

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182. A method of determining a volume of a heart, comprising:

providing a plurality of images of at least a portion of a heart to a computer system;

assessing a volume in the portion by using the computer system to assess areas on the image; and

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assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

183. A method of determining an end diastolic volume of a heart, comprising:

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providing a plurality of images of at least a portion of a heart to a computer system, wherein the heart is in a substantially expanded condition;

assessing a volume in the portion by using the computer system to assess areas on the image.

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184. The method of claim 183, further comprising using the images to create at least a three-dimensional image.

185. The method of claim 183, further comprising deriving at least one feature of the heart from at least one of the images to assist in creating at least a three-dimensional image.

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186. The method of claim 183, further comprising deriving a plurality of features of the heart from the plurality of images to assist in creating at least a three-dimensional image.



187. The method of claim 183, further comprising extrapolating at least one feature of the heart from at least two of the images to assist in creating at least a three-dimensional image.

5 188. The method of claim 183, further comprising extrapolating a plurality of features of the heart from the plurality of images to assist in creating at least a three-dimensional image.

189. The method of claim 183, further comprising creating at least a three-dimensional  
10 image of human heart tissue comprises.

190. The method of claim 183, further comprising using the computer system to create at least a three-dimensional image of human heart tissue comprises.

15 191. The method of claim 183, wherein the computer system divides at least one image into a plurality of sections.

192. The method of claim 183, further comprising using the images to create at least a four-dimensional image of human heart tissue.

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193. The method of claim 192, wherein one of the dimensions comprises time.

194. The method of claim 192, wherein one of the dimensions comprises at least one physiological factor.

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195. The method of claim 194, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

196. The method of claim 183, further comprising creating at least one image of the  
30 assessed volume.

197. The method of claim 196, wherein at least one image of the assessed affect of the modification comprises at least a three-dimensional image.

198. A computerized method of determining an end systolic volume of a heart,  
5 comprising:

providing a plurality of images of at least a portion of a heart to a computer system, wherein the heart is in a substantially contracted condition;

assessing a volume in the portion by using the computer system to asses areas on the image.

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199. The method of claim 198, further comprising using the images to create at least a three-dimensional image.

200. The method of claim 198, further comprising deriving at least one feature of the  
15 heart from at least one of the images to assist in creating at least a three-dimensional image.

201. The method of claim 198, further comprising deriving a plurality of features of the heart from the plurality of images to assist in creating at least a three-dimensional image.

20

202. The method of claim 198, further comprising extrapolating at least one feature of the heart from at least two of the images to create at least a three-dimensional image.

203. The method of claim 198, further comprising extrapolating a plurality of features of  
25 the heart from the plurality of images to create at least a three-dimensional image.

204. The method of claim 198, wherein the computer system divides at least one image into a plurality of sections.

30 205. The method of claim 198, further comprising using the images to create at least a four-dimensional image of human heart tissue.

206. The method of claim 205, wherein one of the dimensions comprises time.

207. The method of claim 205, wherein one of the dimensions comprises at least one  
5 physiological factor.

208. The method of claim 207, wherein at least one physiological factor comprises  
hormone B-type natriuretic peptide.

10 209. The method of claim 198, further comprising creating at least one image of the  
assessed volume.

210. The method of claim 209, wherein at least one image of the assessed affect of the  
modification comprises at least a three-dimensional image.

15 211. A method of determining an ejection fraction of a human heart, comprising:  
providing a plurality of images of heart tissue from the heart to a computer  
system; and  
assessing at least a first volume and second volume of a portion of a heart by  
20 using the computer system to asses areas on at least two of the images.

212. The method of claim 211, further comprising using the images to create at least a  
three-dimensional image.

25 213. The method of claim 211, further comprising deriving at least one feature of the  
heart from at least one of the images to assist in creating at least a three-dimensional  
image.

214. The method of claim 211, further comprising deriving a plurality of features of the  
30 heart from the plurality of images to assist in creating at least a three-dimensional image.

215. The method of claim 211, further comprising extrapolating at least one feature of the heart from at least one of the plurality of images to create at least a three-dimensional image.

5 216. The method of claim 211, wherein the computer system divides at least one of the plurality of images into a plurality of sections.

217. The method of claim 198, further comprising using the images to create at least a four-dimensional image of the heart tissue.

10

218. The method of claim 205, wherein one of the dimensions comprises time.

219. The method of claim 205, wherein one of the dimensions comprises at least one physiological factor.

15

220. The method of claim 207, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

20

221. The method of claim 198, further comprising creating at least one image of the assessed areas.

222. The method of claim 221, wherein at least one image comprises at least a three-dimensional image.

25 223. A method of determining an ejection fraction of a human heart, comprising:  
providing a plurality of images of heart tissue from the heart to a computer system;  
assessing at least a first volume and second volume of a portion of the heart by  
using the computer system to assess areas on at least one of the plurality of images; and  
30 using at least the first volume and second volume to assess the ejection fraction of the heart.

224. The method of claim 223, further comprising using the plurality of images to create at least a three-dimensional image.

5 225. The method of claim 223, further comprising deriving at least one feature of the heart from at least one of the images to assist in creating at least a three-dimensional image.

226. The method of claim 223, further comprising deriving a plurality of features of the  
10 heart from the plurality of images to assist in creating at least a three-dimensional image.

227. The method of claim 223, further comprising extrapolating at least one feature of the heart from at least one of the plurality of images to create at least a three-dimensional image.

15 228. The method of claim 223, wherein the computer system divides at least one of the plurality of images into a plurality of sections.

229. The method of claim 223, further comprising using the plurality of images to create  
20 at least a four-dimensional image of human heart tissue.

230. The method of claim 229, wherein one of the dimensions comprises time.

231. The method of claim 229, wherein one of the dimensions comprises at least one  
25 physiological factor.

232. The method of claim 231, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

30 233. The method of claim 223, further comprising creating at least one image of the assessed ejection fraction.

234. The method of claim 233, wherein at least one image of the assessed ejection fraction of the heart comprises at least a three-dimensional image.

5 235. A method of determining an ejection fraction of a human heart, comprising:  
providing a plurality of images of heart tissue from the heart to a computer system;  
using the images to create a three-dimensional image of the heart tissue;  
assessing at least a first volume and second volume of a portion of a heart by  
10 using the computer system to assess areas on at least two of the images; and  
using at least the first volume and second volume to assess the ejection fraction of the heart.

236. A system configured to determine an ejection fraction of a human heart,  
15 comprising:  
a CPU; and  
a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;  
wherein one or more computer programs are executable to:  
20 provide to a computer system a plurality of images of heart tissue from a human heart; and  
assess at least a first volume and second volume of a portion of a heart by using the computer system to assess areas on at least one of the plurality of images.

25 237. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method determine an ejection fraction of a human heart, comprising:  
providing to a computer system a plurality of images of heart tissue from a human heart; and  
30 assessing at least a first volume and second volume of a portion of a heart by using the computer system to assess areas on at least one of the plurality of images.

238. A report for determination of an ejection fraction of a human heart prepared by a method, comprising:

5 providing to a computer system a plurality of images of heart tissue from a human heart; and

assessing at least a first volume and second volume of a portion of a heart by using the computer system to assess areas on at one of the plurality of images.

239. A method of determining an ejection fraction of a heart, comprising:

10 providing to a computer system a plurality of images of human heart tissue from a human heart;

assessing at least a first volume and second volume of a portion of a heart by using the computer system to assess areas on at least one of the plurality of images; and

15 assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

240. A method of assessing a viability of human heart tissue, comprising:

providing one or more images of heart tissue from a human heart to a computer system; and

20 assessing viability of the heart tissue by using the computer system to assess a contrast between two or more sections in at least one image.

241. The method of claim 240, further comprising:

providing two or more images of heart tissue to the computer system; and

25 using at least two images of heart tissue to create at least a three-dimensional image of the heart tissue.

242. The method of claim 240, further comprising:

providing two or more images of heart tissue to the computer system; and

30 using at least two images to create at least a four-dimensional image of the heart tissue.

243. The method of claim 242, wherein one of the dimensions comprises time.

244. The method of claim 242, wherein one of the dimensions comprises at least one  
5 physiological factor.

245. The method of claim 244, wherein at least one physiological factor comprises  
hormone B-type natriuretic peptide.

10 246. The method of claim 240, further comprising creating one or more images of the  
contrasted sections of the image used to assess viability of the heart.

247. The method of claim 246, wherein at least one image comprises at least a three-  
dimensional image.

15

248. The method of claim 246, wherein at least one image comprises progressive  
coloring.

249. The method of claim 248, wherein the progressive coloring comprises grayscale.

20

250. A method of assessing a viability of human heart tissue, comprising:

providing at least one image of heart tissue from a human heart to a computer  
system;

dividing at least one image into a plurality of sections;

25

assigning a value to at least one of the sections, wherein the value is a function of  
a feature of the section; and

using the value of at least one of the sections to assess viability of human heart  
tissue in or proximate to at least one of the sections.

30 251. The method of claim 250, wherein assessing viability of human heart tissue  
comprises determining viability of human heart tissue.



252. The method of claim 250, wherein the feature of the section is a color of the section.

5 253. The method of claim 252, wherein the color of the section comprises grayscale.

254. The method of claim 250, wherein the computer system divides at least one image into a plurality of images.

10 255. The method of claim 250, wherein the computer system assigns the value to at least one of the sections.

256. The method of claim 250, further comprising extrapolating at least one feature from the images.

15

257. The method of claim 250, wherein the computer system uses the value assigned to at least one of the sections to assess viability of human heart tissue in or proximate to at least one of the sections.

20 258. The method of claim 250, further comprising at least creating a three-dimensional image of the human heart tissue.

259. The method of claim 250, further comprising creating at least a three-dimensional image of the human heart tissue, with different viabilities indicated on the image.

25

260. The method of claim 250, displaying the three-dimensional image.

261. The method of claim 250, further comprising creating a report comprising at least a three-dimensional image of human hear tissue, wherein the image is divided into sections based on the assessed viability of the sections.

30

262. A method of assessing a viability of human heart tissue, comprising:  
providing to a computer system a plurality of images of heart tissue from a human heart;  
using the images to create a three-dimensional image of the heart tissue;  
5 dividing the three-dimensional image into sections;  
assigning a value to at least one of the sections, wherein the value is a function of a feature of the segment; and  
using the value of at least one of the sections to assess viability of the heart tissue in or proximate to at least one of the sections.

10  
263. A system configured to assess a viability of human heart tissue, comprising:  
a CPU; and  
a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;  
15 wherein one or more computer programs are executable to:  
provide at least one image of heart tissue from a human heart to a computer system; and  
assess viability of human heart tissue by using the computer system to assess a contrast between at least two sections in at least one image.

20  
264. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method to assess viability of human heart tissue, comprising:  
providing to a computer system at least one image of heart tissue from the heart;  
25 and  
assessing viability of human heart tissue by using the computer system to assess a contrast between at least two sections in at least one image.

265. A report prepared by a method, comprising:  
30 providing at least one image of heart tissue from a human heart to a computer system; and

assessing viability of the heart tissue by using the computer system to assess a contrast between at least two sections in at least one image.

266. A method of assessing a viability of human heart tissue, comprising:

- 5       providing to a computer system at least one image of heart tissue from the heart;  
      assessing viability of the heart tissue by using the computer system to assess a contrast between at least two sections in at least one image; and  
      assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

10

267. A method of assessing motion of human heart tissue, comprising:

- providing a plurality of images of heart tissue from a human heart to a computer system,  
      using the plurality of images to create one or more three-dimensional images of  
15   the heart tissue, wherein  
      assessing motion of at least one section of the three-dimensional image to assess asynergy of the heart tissue; and  
      creating one or more three-dimensional image of the assessed asynergy.

- 20   268. The method of claim 267, further comprising using the plurality of images to create at least a four-dimensional image of the heart tissue.

269. The method of claim 268, wherein one of the dimensions comprises time.

- 25   270. The method of claim 268, wherein one of the dimensions comprises at least one physiological factor.

271. The method of claim 270, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

30

272. The method of claim 267, wherein at least one three-dimensional image comprises progressive coloring.

273. The method of claim 267, wherein the progressive coloring comprises grayscale.

5

274. A method of assessing motion of human heart tissue, comprising:

providing a plurality of images of human heart tissue from the heart to a computer system;

using the images to create at least a three-dimensional image of the heart tissue;

10

dividing a three-dimensional image into one or more sections;

assessing motion of at least one section of the three-dimensional image to assess asynergy of the heart tissue; and

creating at least a three-dimensional image of the assessed asynergy.

15

275. A system configured to assess human heart tissue motion, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

20

provide a plurality of images of heart tissue from a human heart to a computer system;

assess motion of at least one section of the three-dimensional image to assess asynergy of human heart tissue; and

create at least a three-dimensional image of the assessed asynergy.

25

276. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method, comprising:

providing a plurality of images of heart tissue from a human heart to a computer system;

30

assessing motion of at least one section of the three-dimensional image to assess asynergy of human heart tissue; and

creating at least a three-dimensional image of the assessed asynergy.

277. A report prepared by a method, comprising:

5 providing a plurality of images of heart tissue from a human heart to a computer system;

assessing motion of at least one section of the three-dimensional image to assess asynergy of human heart tissue; and

creating at least a three-dimensional image of the assessed asynergy.

10 278. A method of assessing human heart tissue motion, comprising:

providing a plurality of images of heart tissue from a human heart to a computer system;

assessing motion of at least one section of the three-dimensional image to assess asynergy of heart tissue;

15 creating at least a three-dimensional image of the assessed asynergy; and

assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

279. A method of assessing transmural scarring of heart tissue from a human heart, comprising:

20

providing at least one image of heart tissue from the heart to a computer system; and

assessing an extent of heart tissue scarring by using the computer system to assess a contrast between at least two sections in at least one image.

25

280. The method of claim 279, wherein assessing extent of human heart tissue scarring comprises determining scarring of human heart tissue.

281. The method of claim 279, wherein the computer system divides at least one image into a plurality of images.

30

282. The method of claim 279, wherein the computer system uses the contrast of at least one of the sections to assess scarring in or proximate to at least one of the sections.

283. The method of claim 279, further comprising at least creating a three-dimensional  
5 image of the heart tissue.

284. The method of claim 279, further comprising creating at least a three-dimensional image of the heart tissue, with contrast of at least one of the two sections on the image.

10 285. The method of claim 279, displaying the three-dimensional image.

286. The method of claim 279, further comprising creating a report comprising at least a three-dimensional image of the heart tissue, wherein the image is divided into sections based on the contrast of the sections.

15

287. A method of assessing transmural of human heart tissue scarring, comprising:

providing a plurality of images of heart tissue from a human heart to a computer system;

assessing an extent of heart tissue scarring by using the computer system to assess  
20 a contrast between at least two sections in at least one image; and

creating at least a three-dimensional image of a least a portion of the assessed scar tissue.

288. A system configured to assess transmural of human heart tissue scarring,

25 comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

30 provide at least one image of heart tissue from a human heart to a computer system; and

assess an extent of heart tissue scarring by using the computer system to assess a contrast between at least two sections in at least one image.

289. A carrier medium configured to store program instructions, wherein the program  
5 instructions are executable to implement a method, comprising:

providing at least one image of heart tissue from a human heart to a computer system; and

assessing an extent of heart tissue scarring by using the computer system to assess a contrast between at least two sections in at least one image.

10

290. A report prepared by a method, comprising:

providing at least one image of heart tissue from a human heart to a computer system; and

assessing an extent of heart tissue scarring by using the computer system to assess  
15 a contrast between at least two sections in at least one image.

291. A method of assessing transmural of human heart tissue scarring, comprising:

providing at least one image of heart tissue from a human heart to a computer system;

20 assessing an extent of heart tissue scarring by using the computer system to assess a contrast between at least two sections in at least one image; and

assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

25 292. A method of analyzing a shape of human heart tissue, comprising:

providing at least one image of heart tissue from a human heart to a computer system;

dividing at least one image into a plurality of sections; and

assessing a shape of the heart tissue by using the computer system to assess a  
30 curvature of at least one of the sections.

293. The method of claim 292, wherein assessing the shape of the heart tissue comprises determining shaping of human heart tissue.

294. The method of claim 292, wherein the computer system uses the shape of at least one of the sections to assess shaping in or proximate to at least one of the sections.

295. The method of claim 292, further comprising at least creating a three-dimensional image of the heart tissue.

296. The method of claim 292, further comprising creating at least a three-dimensional image of the heart tissue, with a shape of at least one of the two sections on the image.

297. The method of claim 292, displaying the three-dimensional image.

298. The method of claim 292, further comprising creating a report comprising at least a three-dimensional image of the heart tissue, wherein the image is divided into sections based on the shape of the sections.

299. A system configured to analyze a shape of human heart tissue, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

provide at least one image of heart tissue from a human heart to a computer

system;

divide at least one image into a plurality of sections; and

assess a shape of heart tissue by using the computer system to assess a curvature of at least one of the sections.

300. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method, comprising:



providing at least one image of heart tissue from a human heart to a computer system;

dividing at least one image into a plurality of sections; and

assessing a shape of the heart tissue by using the computer system to assess a  
5 curvature of at least one of the sections.

301. A report prepared by a method, comprising:

providing at least one image of heart tissue from a human heart to a computer system;

10 dividing at least one image into a plurality of sections; and

assessing a shape of the heart tissue by using the computer system to assess a curvature of at least one of the sections.

302. A method of analyzing a shape of human heart tissue, comprising:

15 providing at least one image of heart tissue from a human heart to a computer system;

dividing at least one image into a plurality of sections;

assessing a shape of the heart tissue by using the computer system to assess a curvature of at least one of the sections; and

20 assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

303. A method of assessing viability of human heart tissue, comprising:

25 providing at least one image of heart tissue from a human heart to a computer system; and

assessing wall thickness of the heart tissue by using the computer system to assess a contrast between at least two sections in at least one image.

304. The method of claim 303, wherein the computer system divides at least one image  
30 into a plurality of images.

305. The method of claim 303, wherein the computer system uses the contrast of at least one of the sections to assess wall thickness in or proximate to at least one of the sections.

306. The method of claim 303, further comprising at least creating a three-dimensional  
5 image of the heart tissue.

307. The method of claim 303, further comprising creating at least a three-dimensional image of the heart tissue, with contrast of at least one of the two sections on the image.

10 308. The method of claim 303, displaying the three-dimensional image.

309. The method of claim 303, further comprising creating a report comprising at least a three-dimensional image of the heart tissue, wherein the image is divided into sections based on the contrast of the sections.

15

310. The method of claim 303, further comprising using the computer system to assess a viability of at least a portion of the heart tissue using the assessed wall thickness.

311. A system configured to assess viability of human heart tissue, comprising:

20

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

provide at least one image of heart tissue from a human heart; to a computer

25

system and

assess wall thickness of the heart tissue by using the computer system to assess a contrast between at least two sections in at least one image.

312. A carrier medium configured to store program instructions, wherein the program  
30 instructions are executable to implement a method, comprising:

providing at least one image of heart tissue from a human heart to a computer system;  
and  
assessing wall thickness of the heart tissue by using the computer system to assess a  
contrast between at least two sections in at least one image.

5

313. A report prepared by a method, comprising:

providing at least one image of heart tissue from a human heart to a computer  
system; and

10 assessing wall thickness of the heart tissue by using the computer system to assess  
a contrast between at least two sections in at least one image.

314. A method of analyzing a shape of human heart tissue, comprising:

providing at least one image of human heart tissue from a human heart to a  
computer system;

15 assessing wall thickness of the heart tissue by using the computer system to assess  
a contrast between at least two sections in at least one image; and

assessing a cost to be charged to a user for using the method based on a number of  
times the user applies the method.

20 315. A method of assessing a mitral valve in a human heart, comprising:

providing at least one image of heart tissue from a human heart to a computer  
system;

25 assessing a state of a mitral valve in the heart by using the computer system to  
assess one or more distances between two papillary muscles of the heart and one or more  
angles between a mitral valve and one or more papillary muscles.

316. The method of claim 315, wherein the computer system divides at least one image  
into a plurality of images.

30 317. The method of claim 315, further comprising at least creating a three-dimensional  
image of the heart tissue.

318. The method of claim 315, displaying the three-dimensional image.

319. The method of claim 315, further comprising creating a report comprising at least a  
5 three-dimensional image of the heart tissue, wherein at least one distance between two  
papillary muscles of the heart and at least one angle between a mitral valve and at least  
one papillary muscle is displayed.

320. A method of assessing distances in a human heart, comprising:

10 providing at least one image of heart tissue from the heart to a computer system;  
locating at least two reference points to at least one image of the heart tissue; and  
assessing one or more distances in the heart tissue by using the computer system  
to assess a distance between a plurality of reference points.

15 321. The method of claim 320, wherein the computer system divides at least one image  
into a plurality of images.

322. The method of claim 320, further comprising at least creating a three-dimensional  
image of the heart tissue.

20

323. The method of claim 320, further comprising creating at least a three-dimensional  
image of the heart tissue, with distance between at least two reference points on the  
image.

25 324. The method of claim 320, displaying the three-dimensional image.

325. The method of claim 320, further comprising using the computer system to assess at  
least one distance in the heart tissue by using the distance between at least two or more  
points.

30

326. A method of assessing angles in a human heart, comprising:

providing at least one image of heart tissue from a human heart to a computer system;

locating two or more reference lines to at least one image of the heart tissue; and

assessing at least one angle in the heart by using the computer system to assess an  
5 angle between at least two reference lines.

327. The method of claim 326, wherein the computer system divides at least one image into a plurality of images.

10 328. The method of claim 326, further comprising at least creating a three-dimensional image of the heart tissue.

329. The method of claim 326, further comprising creating at least a three-dimensional image of the heart tissue, with the angle between at least two reference lines on the  
15 image.

330. The method of claim 326, displaying the three-dimensional image.

331. The method of claim 326, further comprising creating a report comprising at least a  
20 three-dimensional image of the heart tissue.

332. The method of claim 326, further comprising using the computer system to assess the angle of at least a portion of the heart tissue using the angle between at least two reference lines.  
25

333. A method of assessing blood flow in a human heart, comprising:

providing at least two images of heart tissue from the heart, a velocity of fluid through a portion of a human heart and a time frame over which the images were collected to the computer system;

30 assessing fluid flow through a portion of a human heart by using the computer system to assess areas on the image.

334. The method of claim 333, wherein the computer system divides at least one image of human heart tissue into a plurality of sections.

5 335. The method of claim 333, further comprising:  
providing two or more images of heart tissue to the computer system, and  
extrapolating at least one feature from at least two images of human heart tissue.

10 336. The method of claim 333, further comprising:  
providing two or more images of heart tissue to the computer system; and  
using at least two images of heart tissue to create at least a three-dimensional  
image of the heart tissue.

15 337. The method of claim 333, further comprising:  
providing two or more images of heart tissue to the computer system; and  
using at least two images to create at least a four-dimensional image of the heart  
tissue.

20 338. The method of claim 337, wherein one of the dimensions comprises time.

339. The method of claim 337, wherein one of the dimensions comprises at least one  
physiological factor.

25 340. The method of claim 333, further comprising creating one or more images of the  
assessed fluid flow of the heart.

341. The method of claim 340, wherein at least one image comprises at least a three-  
dimensional image.

30 342. The method of claim 340, wherein at least one image of the assessed fluid flow of  
the heart comprises progressive coloring.

343. The method of claim 342, wherein the progressive coloring comprises grayscale.

344. A method of assessing mitral regurgitation in a human heart, comprising:

- 5       providing at least two images of heart tissue from a human heart and a velocity as  
a function of time of blood through a portion of the heart to a computer system;  
      assessing a mitral regurgitation of the heart by using the computer system to assess  
at least a first and second volume of a portion of the heart and blood flow through a  
portion of the heart.

10

345. The method of claim 344, wherein the computer system divides at least one image  
of human heart tissue into a plurality of sections.

346. The method of claim 344, further comprising:

- 15       providing two or more images of heart tissue to the computer system, and  
      extrapolating at least one feature from at least two images of human heart tissue.

347. The method of claim 344, further comprising:

- providing two or more images of heart tissue to the computer system; and  
20       using at least two images of heart tissue to create at least a three-dimensional  
image of the heart tissue.

348. The method of claim 344, further comprising:

- providing two or more images of heart tissue to the computer system; and  
25       using at least two images to create at least a four-dimensional image of the heart  
tissue.

349. The method of claim 348, wherein one of the dimensions comprises time.

- 30   350. The method of claim 348, wherein one of the dimensions comprises at least one  
physiological factor.

351. The method of claim 344, further comprising creating one or more images of the assessed mitral regurgitation of the heart.

5 352. The method of claim 351, wherein at least one image comprises at least a three-dimensional image.

353. The method of claim 351, wherein at least one image of the assessed mitral regurgitation of the heart comprises progressive coloring.

10

354. The method of claim 353, wherein the progressive coloring comprises grayscale.

355. A method of assessing a viability of human heart tissue, comprising:

15 providing at least two images of heart tissue from a human heart to a computer system;

assigning at least one reference point to at least two images of the heart tissue; and

20 assessing a viability of the heart tissue by using the computer system to assess relative movement of at least one of the reference points between at least two images of the heart tissue.

356. The method of claim 355, wherein the computer system divides at least one image of human heart tissue into a plurality of sections.

25 357. The method of claim 355, further comprising:  
providing two or more images of heart tissue to the computer system, and  
extrapolating at least one feature from at least two images of human heart tissue.

30 358. The method of claim 355, further comprising:  
providing two or more images of heart tissue to the computer system; and



using at least two images of heart tissue to create at least a three-dimensional image of the heart tissue.

359. The method of claim 355, further comprising:

5 providing two or more images of heart tissue to the computer system; and  
using at least two images to create at least a four-dimensional image of the heart tissue.

360. The method of claim 359, wherein one of the dimensions comprises time.

10

361. The method of claim 359, wherein one of the dimensions comprises at least one physiological factor.

362. The method of claim 355, further comprising creating one or more images of the  
15 assessed viability of the heart tissue.

363. The method of claim 362, wherein at least one image comprises at least a three-dimensional image.

20 364. The method of claim 362, wherein at least one image of the assessed viability of the heart tissue comprises progressive coloring.

365. The method of claim 364, wherein the progressive coloring comprises grayscale.

25 366. A method of assessing heart reconstruction procedures, comprising:

providing at least one image of heart tissue from a human heart to a computer system, wherein at least one of the images comprises at least a portion of a mitral valve; and

modifying at least one feature derived from the image, wherein at least one of the  
30 features modified comprises at least a portion of the mitral valve; and

assessing an affect of the modification on one or more features derived from the image.

5 367. The method of claim 366, wherein at least one of the features is extrapolated from at least two images.

368. The method of claim 366, wherein at least one of the features is extrapolated from at least two images.

10 369. The method of claim 366, wherein the computer system divides at least one image of human heart tissue into a plurality of sections.

370. The method of claim 366, further comprising:  
providing two or more images of heart tissue to the computer system, and  
15 extrapolating at least one feature from at least two images of human heart tissue.

371. The method of claim 366, further comprising:  
providing two or more images of heart tissue to the computer system; and  
using at least two images of heart tissue to create at least a three-dimensional  
20 image of the heart tissue.

372. The method of claim 366, further comprising:  
providing two or more images of heart tissue to the computer system; and  
using at least two images to create at least a four-dimensional image of the heart  
25 tissue.

373. The method of claim 372, wherein one of the dimensions comprises time.

30 374. The method of claim 372, wherein one of the dimensions comprises at least one physiological factor.

375. The method of claim 366, further comprising creating one or more images of the assessed effect of the modification of one or more features.

376. The method of claim 375, wherein at least one image comprises at least a three-  
5 dimensional image.

377. The method of claim 375, wherein at least one image of the assessed effect of the modification of one or more features. comprises progressive coloring.

10 378. The method of claim 377, wherein the progressive coloring comprises grayscale.

379. A method of assessing heart reconstruction procedures, comprising:

providing a plurality of images of heart tissue from a human heart to a computer system, wherein at least some of the images comprise at least a portion of a mitral valve;

15 using the images to create at least a three-dimensional image of the heart tissue, wherein the image comprises a plurality of features;

modifying at least one of the features wherein at least one of the features modified comprises at least a portion of the mitral valve; and

20 assessing an affect of the modification on one or more features derived from the three-dimensional image.

380. A method of assessing cardiac electrical activity, comprising:

providing one or more images of heart tissue from a human heart to a computer system; and

25 modifying one or more features of the image; and

assessing an electrical affect of the modification on one or more features derived from the image.

381. The method of claim 380, wherein at least one of the features is extrapolated from  
30 at least two images.

382. The method of claim 380, wherein the computer system divides at least one image of human heart tissue into a plurality of sections.

383. The method of claim 380, further comprising:

5        providing two or more images of human heart tissue to the computer system; and  
      using at least two images of human heart tissue to create at least a three-dimensional image of the heart tissue.

384. The method of claim 380, further comprising:

10       providing two or more images of human heart tissue to the computer system; and  
      using at least two images to create at least a four-dimensional image of the heart tissue.

385. The method of claim 384, wherein one of the dimensions comprises time.

15

386. The method of claim 384, wherein one of the dimensions comprises at least one physiological factor.

387. The method of claim 386, wherein at least one physiological factor comprises

20       hormone B-type natriuretic peptide.

388. The method of claim 380, further comprising creating one or more images of the electrical affect assessment.

25       389. The method of claim 388, wherein at least one image comprises at least a three-dimensional image.

390. The method of claim 388, wherein at least one image comprises progressive coloring.

30

391. The method of claim 390, wherein the progressive coloring comprises grayscale.

392. A method of diagnosing a human heart, comprising:

providing to a computer system a plurality of images of heart tissue from the heart;

5 using the plurality of images to create one or more three-dimensional images of the heart tissue, wherein at least one three-dimensional image comprises one or more features; and

comparing at least one feature to one or more heart reference features in a database to assess the state of the human heart.

10 393. The method of claim 392, wherein comparing at least one feature comprises using the computer system to perform the comparison.

394. The method of claim 392, wherein the database comprises data from one or more expert opinions.

15 395. The method of claim 392, wherein the database comprises data from one or more surgical procedures.

20 396. The method of claim 392, wherein the computer system divides the plurality of images into a plurality of sections.

397. The method of claim 392, further comprising extrapolating at least one feature from the plurality of images of heart tissue provided to the computer system.

25 398. The method of claim 392, further comprising using the plurality of images to create at least a four-dimensional image of the heart tissue.

399. The method of claim 398, wherein one of the four dimensions comprises time.

400. The method of claim 398, wherein one of the four dimensions comprises at least one physiological factor.

401. The method of claim 400, wherein at least one physiological factor comprises  
5 hormone B-type natriuretic peptide.

402. The method of claim 392, further comprising creating one or more images of the assessed state of the heart.

10 403. The method of claim 402, wherein at least one image comprises at least a three-dimensional image.

404. The method of claim 402, wherein at least one image comprises progressive coloring.

15

405. The method of claim 404, wherein the progressive coloring comprises grayscale.

406. A method of assessing cardiac electrical activity, comprising:

20 providing a plurality of images of heart tissue from a human heart to a computer system;

using the plurality of images to create at least a three-dimensional image of the heart tissue, wherein the image of the heart tissue comprises a plurality of features;

modifying at least one of the features; and

25 assessing an electrical affect of the modification on one or more features of the three-dimensional image.

407. A method of assessing a treatment of heart tissue from a human heart, comprising:

providing one or more images of heart tissue from the heart to a computer system;

modifying one or more feature of the image; and

30 using the computer system to compare the modification of at least one feature of the image to one or more heart reference features in a database to assess the state of the

human heart, wherein the database comprises data from one or more prior treatments of heart tissue from one or more human hearts.

408. The method of claim 407, wherein the database comprises data derived from one or  
5 more expert opinions.

409. The method of claim 407, wherein the database comprises data from one or more surgical procedures.

10 410. The method of claim 407, wherein the computer system divides at least one image of the heart tissue into a plurality of sections.

411. The method of claim 407, further comprising:  
providing two or more images of human heart tissue to the computer system, and  
15 extrapolating at least one feature from at least two images of the heart tissue.

412. The method of claim 407, further comprising:  
providing two or more images of human heart tissue to the computer system; and  
using at least two images of human heart tissue to create at least a three-  
20 dimensional image of the heart tissue.

413. The method of claim 407, further comprising:  
providing two or more images to the computer system; and  
using at least two images to create at least a four-dimensional image of the heart  
25 tissue.

414. The method of claim 413, wherein one of the dimensions comprises time.

415. The method of claim 413, wherein one of the dimensions comprises at least one  
30 physiological factor.

416. The method of claim 415, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

417. The method of claim 407, further comprising creating one or more images of the  
5 assessed state of the human heart.

418. The method of claim 417, wherein at least one image comprises at least a three-dimensional image.

10 419. The method of claim 417, wherein at least one image comprises progressive coloring.

420. The method of claim 419, wherein the progressive coloring comprises grayscale.

15 421. A method of diagnosing a human heart, comprising:  
    providing to a computer system a plurality of images of heart tissue from the heart;  
    using the plurality of images to create one or more three-dimensional images of  
the heart tissue, wherein at least one three-dimensional image comprises one or more  
features; and  
20      comparing at least one feature to one or more heart reference features in a  
database to assess the state of the human heart.

422. The method of claim 421, wherein comparing at least one feature comprises using  
the computer system to perform the comparison.

25 423. The method of claim 421, wherein the database comprises data from one or more  
expert opinions.

424. The method of claim 421, wherein the database comprises data from one or more  
30 surgical procedures.



425. The method of claim 421, wherein the computer system divides the plurality of images into a plurality of sections.

426. The method of claim 421, further comprising extrapolating at least one feature from the plurality of images of heart tissue provided to the computer system.

427. The method of claim 421, further comprising using the plurality of images to create at least a four-dimensional image of the heart tissue.

428. The method of claim 427, wherein one of the four dimensions comprises time.

429. The method of claim 427, wherein one of the four dimensions comprises at least one physiological factor.

430. The method of claim 429, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

431. The method of claim 427, further comprising creating one or more images of the assessed state of the human heart.

432. The method of claim 432, wherein at least one image comprises at least a three-dimensional image.

433. The method of claim 432, wherein at least one image comprises progressive coloring.

434. The method of claim 433, wherein the progressive coloring comprises grayscale.

435. A method of creating multi-dimensional human heart tissue images, comprising:

providing a plurality of images of human heart tissue to a computer system,  
wherein one or more of the images of human heart tissue were collected using a specified  
protocol, and wherein the plurality of images are at least two-dimensional; and

creating at least one second image using the computer system, wherein the second  
5 image is at least three-dimensional.

436. The method of claim 435, wherein the computer system divides at least one image  
of heart tissue into a plurality of sections.

10 437. The method of claim 435, further comprising determining at least one feature from  
at least two images of heart tissue.

438. The method of claim 435, wherein the second image is at least a four-dimensional  
image of human heart tissue.

15

439. The method of claim 437, wherein one of the dimensions comprises time.

440. The method of claim 437, wherein one of the dimensions comprises at least one  
physiological factor.

20

441. The method of claim 440, wherein at least one physiological factor comprises  
hormone B-type natriuretic peptide.

442. The method of claim 435, wherein the second image comprises an interactive model  
25 of the human heart.

443. The method of claim 435, wherein the second image comprises an interactive model  
of the human heart, and wherein the method further comprises performing a first  
modification of at least one feature of the model.

30

444. The method of claim 435, wherein the second image comprises an interactive model of the human heart, and wherein the method further comprises:

performing a first modification of at least one feature of the model;

performing at least one second modification of at least one feature of the model;

5 and

comparing at least the first modification to at least one second modification, or

comparing at least the second modification to at least one first modification.

445. The method of claim 435, wherein at least a portion of at least one of the images

10 comprises an enhanced contrast.

446. The method of claim 435, wherein creating at least one second image using the computer system comprises combining at least two first images using the computer system to digitally overlay similar portions of the first images.

15

447. The method of claim 435, further comprising enhancing clarity of at least a portion of at least one image of human heart tissue by combining the portion with at least a portion of at least one contrast enhanced image.

20 448. A system configured to create multi-dimensional human heart tissue images, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

25 wherein at least one computer program is executable to:

provide a plurality of images of human heart tissue to a computer system, wherein one or more of the images of human heart tissue were collected using a specified protocol, and wherein the plurality of images are at least two-dimensional; and

create at least one second image using the computer system, wherein the second  
30 image is at least three-dimensional.

449. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method, comprising  
providing a plurality of images of human heart tissue to a computer system,  
wherein one or more of the images of human heart tissue were collected using a specified  
5 protocol, and wherein the plurality of images are at least two-dimensional; and  
creating at least one second image using the computer system, wherein the second image is at least three-dimensional.

450. A report prepared by a method, comprising:

10 providing a plurality of images of human heart tissue to a computer system,  
wherein one or more of the images of human heart tissue were collected using a specified protocol, and wherein the plurality of images are at least two-dimensional; and  
creating at least one second image using the computer system, wherein the second image is at least three-dimensional.

15 451. A method of creating multi-dimensional human heart tissue images, comprising:

providing a plurality of images of human heart tissue to a computer system,  
wherein one or more of the images of human heart tissue were collected using a specified protocol, and wherein the plurality of images are at least two-dimensional; and  
20 creating at least one second image using the computer system, wherein the second image is at least three-dimensional; and  
assessing a cost to be charged to a user for using the method based on a number of times the user applies the method.

25 452. A method of remotely assessing treatment of a human heart, comprising:

providing a heart procedure assessment program accessible via a network;  
providing at least one image of heart tissue from the heart to the heart procedure assessment program; and  
accessing the heart procedure assessment program remotely to assess a procedure  
30 for treatment of the heart.

453. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart comprises comparing at least one feature of at least one image of heart tissue to one or more heart reference features in a database accessible via the network to assess the state of the heart.

5

454. The method of claim 453, wherein the database comprises data from one or more expert opinions.

455. The method of claim 453, wherein the database comprises data from one or more surgical procedures.

10

456. The method of claim 452, wherein the heart procedure assessment program divides at least one image of human heart tissue into a plurality of sections.

15 457. The method of claim 452, further comprising:

providing two or more images of heart tissue to the heart procedure assessment program, and

determining at least one feature from at least two images of the heart tissue.

20 458. The method of claim 452, further comprising:

providing two or more images of human heart tissue to the heart procedure assessment program; and

using at least two images of human heart tissue to create at least a three-dimensional image of the heart tissue.

25

459. The method of claim 452, further comprising:

providing two or more images to the heart procedure assessment program; and

using at least two images to create at least a four-dimensional image of the heart tissue.

30

460. The method of claim 459, wherein one of the dimensions comprises time.

461. The method of claim 459, wherein one of the dimensions comprises at least one physiological factor.

5 462. The method of claim 461, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

463. The method of claim 452, wherein at least one image of human heart tissue comprises at least a three-dimensional image.

10

464. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart comprises performing a first modification of at least one feature of at least one image.

15 465. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart comprises:

performing a first modification of at least one feature of at least one image;  
performing at least one second modification of at least feature of at least one

image; and

20 comparing at least the first modification to at least the second modification, or  
comparing at least the second modification to at least the first modification.

466. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess procedure for treatment of the heart comprises:

25 modifying at least one feature of at least one image of human heart tissue; and  
assessing an affect of the modification on at least one image.

467. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart comprises assessing a  
30 volume in a portion of at least one image by using the heart procedure assessment  
program to asses areas on at least one image.

468. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart using the heart procedure assessment program to reconstruct at least a portion of an interior chamber of the heart tissue.

469. The method of claim 452, wherein accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart comprises:  
using the heart procedure assessment program to reconstruct at least a portion of an interior chamber of the heart tissue; and  
assessing an affect of the reconstruction of at least a portion of the interior chamber on at least one other portion of the heart tissue.

470. The method of claim 469, wherein reconstructing at least a portion of the interior chamber comprises modifying at least the size of the portion.

471. The method of claim 469, wherein reconstructing at least a portion of the interior chamber comprises modifying at least the shape of the portion.

472. The method of claim 469, wherein assessing the affect of the reconstruction of at least a portion of the interior chamber on at least one other portion of the heart tissue comprises using the heart procedure assessment program to asses the affect.

473. The method of claim 452, wherein assessing the affect of the reconstruction of at least a portion of the interior chamber on at least one other portion of the heart tissue comprises using the heart procedure assessment program to asses the affect by comparing the affect to a heart database.

474. The method of claim 452, wherein at least a portion of at least one image of human heart tissue comprises an enhanced contrast.

475. The method of claim 452, further comprising enhancing clarity of at least a portion of at least one image of human heart tissue by combining the portion with at least a portion of at least one contrast enhanced image.

- 5 476. A system configured to assess treatment of a human heart, comprising:  
a CPU coupled to a network; and  
a memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;  
wherein at least one computer program is executable to:  
10 provide access to a heart procedure assessment program accessible via a network;  
receive one or more images of heart tissue from the heart to the heart procedure assessment program; and  
execute the heart procedure assessment program to assess a procedure for treatment of the heart, wherein the heart procedure assessment program is executed  
15 remotely with respect to the user.

477. A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method for treatment of human heart, comprising:

- 20 providing a heart procedure assessment program accessible via a network;  
providing at least one image of heart tissue from the heart to the heart procedure assessment program; and  
accessing the heart procedure assessment program remotely to assess a procedure for treatment of the heart.

25

478. A method of assessing a surgical procedure on a human heart, comprising:  
allowing a user to perform a modification to at least one feature of the heart using a computer system; and  
assessing a performance of the user by comparing the user's modification to a  
30 database of modifications.



479. The method of claim 478, wherein assessing a performance of the user comprises using the computer system assess the performance.

480. The method of claim 478, wherein assessing a performance of the user comprises  
5 using the computer system to assign a score to the user's performance.

481. The method of claim 478, wherein assessing a performance of the user comprises using the computer system to assign a score to the user's performance, wherein the score is assigned relative to other performances.

10

482. The method of claim 478, further comprising creating an image of the modification.

483. The method of claim 478, further comprising creating at least a three-dimensional image of the modification.

15

484. A method of assessing plication strategies on heart tissue from a human heart, comprising:

providing at least one image of heart tissue to a computer system, wherein at least one of the images comprises at least a portion of an interior chamber of the heart;

20

reconstructing at least a portion of an interior chamber; and

assessing an affect of a reconstruction of at least a portion of the interior chamber on at least another portion of the heart.

485. The method of claim 484, wherein reconstructing at least a portion of an interior  
25 chamber comprises using the computer system to reconstruct the portion.

486. The method of claim 484, wherein reconstructing at least a portion of an interior chamber comprises modifying at least the size of the portion.

30 487. The method of claim 484, wherein reconstructing at least a portion of an interior chamber comprises modifying at least the shape of the portion.

488. The method of claim 484, wherein assessing an affect of a reconstruction of at least a portion of the interior chamber on at least another portion of the heart comprises using the computer system to asses the affect.

5

489. The method of claim 484, wherein assessing an affect of a reconstruction of at least a portion of the interior chamber on at least another portion of the heart comprises using the computer system to asses the affect by comparing the affect to heart reference features in a database.

10

490. A method of enhancing images, comprising:

providing at least two images of the heart tissue to a computer system, wherein at least one image comprises an enhanced portion;

enhancing at least a portion of at least one image by combining at least a portion  
15 of at least one of the images with at least the enhanced portion of a second image.

491. The method of claim 490, wherein combining at least a portion of at least one of the images with at least the enhanced portion of a second image comprises using the computer system to combine the images.

20

492. The method of claim 490, wherein combining at least a portion of at least one of the images with at least the enhanced portion of a second image comprises using the computer system to digitally overlay at least one portion of the plurality of images on the contrasted portion of the plurality of images.

25

493. The method of claim 490, further comprising enhancing a clarity one or more portions of the plurality of images.

494. The method of claim 490, wherein enhancing at least a portion of at least one image  
30 comprises increasing the contrast.